MECHANICS.

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203. Proposed by J. EDWARD SANDERS, Reinersville, Ohio.

A train weighing $T(=80)$ tons runs first eastward and then westward in latitude $\lambda(=40°)$ at a velocity $v(=45)$ miles an hour. Find the difference between the pressures on the ground in the two cases.

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NUMBER THEORY AND DIOPHANTINE ANALYSIS.

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146. Proposed by PROFESSOR JOSE DE J. CORONADO, Halapa, Vericruz, Mexico.

Find two numbers whose difference is equal to the difference of their cubes.

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AVERAGE AND PROBABILITY.

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189. Proposed by G. B. M. ZERR, A. M., Ph. D., Parsons, W. Va.

(a) Lines are drawn from the vertices of a triangle through a random point within it. Find the average area of the triangle formed by joining the points of intersection of these lines with the opposite sides. (b) Lines are drawn from the vertices to points taken at random in the opposite sides of a triangle. Find the average area of the triangle formed by the intersections of these lines.

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NOTES AND NEWS.

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Mr. S. A. Corey was elected a member of the American Mathematical Society April 27, and was also recently elected a member of the Circolo Matematico di Palermo.

Cardinal Maffi, raised to the purple lately, is a mathematician of considerable note; he started the "Rivista di scienze fisiche e matematiche" and took an active part in the founding of the Italian Catholic Society for Scientific Studies, and in 1903 was made president.   J. H. M.

The University of Pennsylvania offers the following advanced courses in mathematics at the summer session, July 8 to August 17, 1907, each course consisting of thirty lectures: Higher Analytic Geometry, by Prof. E. S. Crawley; Definite Integrals, by Prof. I. J. Schwatt; Theory of Functions of a Complex Variable, by Prof. G. H. Hallett; Differential Equations, by Dr. F. H. Safford.

The following courses are to be offered in Collegiate Mathematics at the Summer Session of the University of Illinois: By Dr. Sisam: Modern Geometry, Plane Analytical Geometry. By Dr. Dodd: Functions of Real Variables, Plane Trigonometry. By Mr. Ponzer: Integral Calculus, Teachers' Course in Pedagogy of Secondary Mathematics. By Mr. Emmons: Theory of Equations, College Algebra. All courses are given daily and are equivalent to corresponding courses offered during the regular college year.

The following advanced courses in Mathematics will be offered at the University of Pennsylvania during the year 1907-08: By Professor E. S. Crawley: Solid Analytic Geometry, two hours; Higher Plane Curves, three hours. By Professor G. E. Fisher: Theory of Functions of a Complex Variable, first half year, three hours; Elliptic Functions, second half year, three hours. By Professor I. J. Schwatt: Definite Integrals, three hours. By Professor G. H. Hallett: Lie's Theory of Continuous Groups, first half year, three hours; Galois' Theory of Algebraic Equations, second half year, three hours. By Dr. F. H. Safford: Curvilinear Co-ordinates, three hours. By Dr. O. E. Glenn, Higher Algebraic Equations, two hours.

The following courses in mathematics are to be offered at the University of Wisconsin during the summer session, 1907: By Professor Van Vleck: Solid Geometry, admission credit; Geometry, a general survey of the progress of geometry, two hours' credit; Theory of Point Sets, two hours' credit. By Professor Dowling: Introduction to Higher Plane Curves, one hour's credit; Differential and Integral Calculus, two hours' credit; Plane Trigonometry, two hours' credit. By Professor Skinner: Elementary Algebra, admission credit or two hours' credit. By Assistant Professor Mason: Analytic Geometry, two hours' credit; Application to Mechanics, one hour's credit; Number Concept and Geometric Construction, one hour's credit.

The following courses in mathematics are to be offered at the University of Michigan during the summer session, 1907: By Professor Beman: Differential Equations, two hours' credit; Geometry and Algebra, a course for teachers, two hours' credit. By Professor Markley: Theory of Functions of a Complex Variable, two hours' credit; Projective Geometry, two hours' credit; College Algebra, two hours' credit. By Assistant Professor Glover: Elementary Algebra, admission credit; Theory of Annuities and Insurance, two hours' credit. By Dr. Running: Analytic Mechanics, two hours' credit; Trigonometry, two hours' credit. By Dr. Field: Differential Calculus, two hours' credit; Integral Calculus, two hours credit. By Mr. Escott: Plane Geometry, admission credit; Analytic Geometry, four hours' credit.